

**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
AIR QUALITY CONSTRUCTION PERMIT**

Permit No. 0073-AC006

Issue Date: Final – July 18, 2000

The Department of Environmental Conservation, under the authority of AS 46.03, AS 46.14, 6 AAC 50, 18 AAC 15, and 18 AAC 50, issues this Air Quality Control Construction Permit to:

<b>Permittee:</b>	<b>BP Exploration (Alaska), Inc.</b>
<b>Facility:</b>	<b>Prudhoe Bay Central Compressor Plant</b>
<b>Project:</b>	<b>Turbine Control System Upgrade</b>
<b>Location:</b>	<b>Prudhoe Bay, Alaska Section 11, Township 11N, Range 14E, Umiat Meridian</b>
<b>Operator:</b>	<b>BP Exploration (Alaska), Inc. 900 East Benson Boulevard Anchorage, Alaska 99519-6612</b>
<b>Owners:</b>	<b>BP Exploration (Alaska) Inc., Chevron U.S.A. Production Co., Exxon Company USA, Mobil Oil Corporation, Phillips Petroleum Company, and Texaco Producing Inc.</b>

In accordance with AS 46.14.130(a), this permit allows the Permittee to upgrade the control system of a single General Electric Model M5371PATP Gas Turbine (Tag No. 18-1802, Source No. 2) at the facility in accordance with terms and conditions of this permit. The permit contains the terms and conditions necessary to ensure that the Permittee will build and operate the facility in accordance with 18 AAC 50.315(e).

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John F. Kuterbach, Manager  
Air Permits Program

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Date

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***Section 1. Permit Continuity***

1. Except as revised or rescinded herein or as superseded by an Air Quality Permit issued under AS 46.12.170, the Permittee shall comply with terms and conditions of Air Quality Control Permit to Operate No. 9573-AA014, as amended and revised through March 27, 1996.
2. If permit terms and conditions listed in this permit conflict with those of Permit No. 9573-AA014, the Permittee shall comply with terms and conditions listed herein.

## **Section 2. General Permit Conditions**

3. For purposes of establishing whether or not the Permittee has violated or is in violation of any standard in this permit, nothing in this permit precludes the use of any credible evidence of information relevant to whether the facility would have been in compliance with applicable requirements if the appropriate performance test or procedures had been performed.
4. The Permittee must comply with each permit term and condition. Noncompliance constitutes a violation of AS 46.14, 18 AAC 50, and the Clean Air Act, except those requirements designated as not federally-enforceable, and is grounds for:
  - 4.1 an enforcement action,
  - 4.2 permit termination, revocation and reissuance, or modification in accordance with AS 46.14.280, or
  - 4.3 denial of an operating-permit renewal application.
5. It is not a defense in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with a permit term or condition.
6. Each permit term and condition is independent of the permit as a whole and remains valid regardless of a challenge to any other part of this permit.
7. Compliance with permit terms and conditions is considered to be compliance with those requirements that are:
  - 7.1 included and specifically identified in the permit, or
  - 7.2 determined in writing in the permit to be inapplicable.
8. The permit may be modified, reopened, revoked and reissued, or terminated for cause. A request by the Permittee for modification, revocation and reissuance, or termination or a notification of planned changes or anticipated noncompliance does not stay any operating permit condition.
9. The permit does not convey any property rights of any sort, nor any exclusive privilege.
10. The Permittee shall allow an officer or employee of the Department or an inspector authorized by the Department, upon presentation of credentials and at reasonable times with the consent of the owner or operator, to:
  - 10.1 enter upon the premises where a source subject to the operating permit is located or where records required by the permit are kept,

- 10.2 have access to and copy any records required by the permit,
- 10.3 inspect any facilities, equipment, practices, or operations regulated by or referenced in the permit, and
- 10.4 sample or monitor substances or parameters to assure compliance with the permit or other applicable requirements.

### **Section 3. Ambient Air Quality Standards and Maximum Allowable Ambient Concentrations**

- 11. General Description.** This permit contains terms and conditions to ensure that allowable emissions from the facility and associated growth will not cause an ambient concentration that exceeds the concentrations established in Table 6 of 18 AAC 50.310(d)(2) at any location that does not or would not meet the ambient air quality standard or maximum allowable ambient concentration.
- 12. Authorization and Notification Requirements.** The Permittee shall modify and operate the facility in accordance with the application and application supplements listed in Section 10 of this permit, as may be currently applicable. The permit authorizes the Permittee to upgrade the control system of a gas-fired turbine (Source No. 2) to a Mark VI, increase the firing temperature of the turbine to 1765°F, and remove the cold ambient temperature torque limit. This permit also lists air quality control requirements for a replacement engine in the diesel fuel-fired emergency turbine (Source No. 23). The source descriptions are as follows:

<b>Source No.</b>	<b>ID No.</b>	<b>Source Description</b>	<b>Date Installed</b>	<b>Design Capacity</b>
2.	18-1802	GE M5371PATP	Before 1977 <sup>1</sup>	35,800 hp @ ISO
23.	EDTG 18-2897	T-4001	2000 <sup>2</sup>	3,550 hp @ ISO

Notwithstanding the regulations set forth in 18 AAC 50.300(h), the Permittee shall notify the Department, in accordance with the following condition, prior to:

- 12.1 installing a permanent stationary emission unit at the facility that is not listed in Exhibit A of Permit to Operate No. 9573-AA014; or
- 12.2 making a physical or operational change to a source listed in Exhibit A of Permit to Operate No. 9573-AA014 or Condition 12 above that would cause the design rating, capacity, or throughput to deviate from the description provided in Exhibit A of Permit to Operate No. 9573-AA014 or this construction permit.

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<sup>1</sup> Source No. 2 was converted from a Model R to a Model P turbine during 1990-91, classifying it as an affected facility under NSPS 40 CFR 60 Subpart GG.

<sup>2</sup> The engine in Source No. 23 was replaced in March 2000, with an affected facility subject to NSPS 40 CFR 60, Subpart GG.

**Section 4. Owner Requested Limits to Avoid Classification as a Prevention of Significant Deterioration Major Modification**

- 13. Nitrogen Oxides Requirements.** The Permittee shall avoid classification as a Prevention of Significant Deterioration major modification under 18 AAC 50.300(h)(3)(B)(ii) for NO<sub>x</sub> as follows:

- 13.1 Install and operate Source No. 2 with Lean Head End combustor technology.
- 13.2 The upgraded Source No. 2 shall not exceed the NO<sub>x</sub> emission limits of 134 lb/hr and 90 ppmvd at 15% O<sub>2</sub> and corrected to ISO conditions.
- 13.3 Within 60 days after achieving the maximum production rate at which the unit will be operated, but no later than 180 days after initial startup, conduct a NO<sub>x</sub> emission source test on Source No. 2 to ensure compliance with the limit listed in Condition 13.2. Source test in accordance with the requirements set forth in Section 8. Determine the NO<sub>x</sub> emission rate for the turbine using exhaust properties determined by both Method 19 and exhaust gas measurements as set out in Section 8.

- 14. Carbon Monoxide Requirements.** The Permittee shall avoid classification as a Prevention of Significant Deterioration major modification under 18 AAC 50.300(h)(3)(B)(i) for CO as follows:

- 14.1 Upgraded Source No. 2 shall not exceed a CO emission rate limit of 177 tons per 12-month rolling period.
- 14.2 The Permittee shall monitor compliance by either Condition 14.2.a or 14.2.b:

a. Continuous Monitoring:

Within 3 months of turbine upgrade, install, calibrate, certify, operate, and maintain, in accordance with Condition 30, a continuous carbon monoxide Emission Monitoring System (CEMS) on the exhaust stack of Source No. 2. The Permittee shall continuously monitor and record compliance with Condition 14.1 based upon carbon monoxide concentration measurements.

- (1) On a daily basis, measure and record Source No. 2 fuel consumption in units of scf per hour and state the basis of the measurement, whether using the lower heating value or higher heating value of the fuel.
- (2) Calculate and record the daily average CO emission rate for Source No. 2 based on the methodology set out in 40 CFR 60, Appendix A, Method 19 as follows:

$$E = [C_d F_d 20.9] / [20.9 - O_{2d}]$$

Where:  $E$  = CO Emission Rate in ng/J (lb/MMBtu)  
 $C_d$  = Concentration of dry CO in ng/scm (lb/scf)  
 $F_d$  = Fuel Factor on a dry basis, scm/J (scf/MMBtu)  
 $O_{2w}$  = Percent Oxygen on a dry basis, %

Use an average  $F$  factor calculated using the procedures listed in 40 CFR 60 Appendix A, Method 19, Part 3.2.1, and consistent with the fuel consumption measurement basis (higher versus lower heating value) in Condition 14.3.

- (3) Calculate and record the total CO emission rate for Source No. 2 for each monthly and 12-month rolling period by summing the CO rates for each day the unit operates during that time period; or

b. Periodic Monitoring:

Within 60 days after achieving the maximum production rate at which the upgraded unit will be operated, but no later than 180 days after initial startup, conduct CO emission source tests on Source No. 2 at three loads (less than 80%, 80-90%, 90-100% of the maximum burning or operating capacity of the source at the time of testing) to ensure compliance with the limit listed in Condition 14.1. If Source No. 2 has a daily average load less than the lowest emission source test load for greater than 18 days per calendar year, then within 90 days after discovery, conduct a CO emission source test on Source No. 2 at the expected low load operations. Source test in accordance with the requirements set forth in Section 8. Determine the CO emission rate for the turbine using exhaust properties determined by both Method 19 and exhaust gas measurements as set out in Section 8. Using the results of the source tests, develop a best-fit curve of exhaust CO concentration corrected to 15% oxygen as a function of percent turbine load.

- (1) For Source No. 2, calculate and record monthly average loads. Maintain daily records of fuel consumed, hours of operation, and ambient temperature sufficient to determine daily load and CO emission rates if required below. These records shall be available for inspection if requested by the Department.
- (2) If the 12-month rolling total CO emission rate is between 159 and 171 tons per 12-month rolling period, then calculate and record monthly average CO emission rates from Source No. 2 based on the total fuel consumption (MMBtu/month) and the monthly average load specific emission factor (lb/MMBtu). Calculate the monthly average load specific emission factor using the exhaust CO concentration for the monthly average load determined from the source test's best-fit curve and Method 19.



- (3) If the 12-month rolling total CO emission rate exceeds 171 tons per 12-month rolling period, then calculate and record daily average CO emission rates from Source No. 2 based on the total daily fuel consumption (MMBtu/day) and the daily average load-specific emission factor (lb/MMBtu). Calculate the daily average load-specific emission factor using the exhaust CO concentration for daily average load determined from the source test's best-fit curve and Method 19. Calculate and record the total CO emission rate for each monthly period by summing the CO rates for each day the unit operates during that time period.

14.3 The Permittee shall report compliance with Condition 14.1 as follows:

- a. Within 45 days after completion of source tests required under Condition 14.2.b, submit to the Department the source test's best-fit curve of exhaust CO concentration corrected to 15% oxygen as a function of turbine load;
- b. List in the Facility Operating Report required by Condition 31, monthly average loads for Source No. 2; and
- c. If the 12-month rolling total CO emission rate exceeds 159 tons per 12-month rolling total, list in the Facility Operating Report the monthly and 12-month rolling total CO emission rates for Source No. 2.

***Section 5. Federal New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAPs)***

- 15.** The requirements set forth in Section 6 of this permit are not delegated to the Department by the U.S. Environmental Protection Agency (EPA) under §111 of the Clean Air Act. This permit does not relieve the Permittee of the responsibility for compliance with these standards as may be required by the U.S. EPA.
- 16.** For reports not otherwise required by Section 6 of this permit, submit to the Department copies of all NSPS and NESHAPs reports that the Permittee submits to the U.S. EPA Region 10. The Permittee may submit periodic federal reporting with the Facility Operating Report required by Condition 30.
- 17.** Notify the Department of any EPA granted waivers of NSPS or NESHAP emission standards, record keeping, monitoring, performance testing, or reporting requirements within 30 days after the Permittee receives a waiver, if EPA has not concurrently sent a duplicate copy to the Department contact as set out in Condition 33.

***Section 6. 40 CFR 60, Subparts A and GG; General Provisions and Standards of Performance for Stationary Gas Turbines***

- 18.** The Permittee shall comply with all emission limits, testing, monitoring, record keeping, and reporting requirements listed in 40 CFR 60, New Source Performance Standards, effective July 1, 1997, incorporated by reference in 18 AAC 50.040, as applicable to Sources No. 2 and 23 as follows:

- 18.1 40 CFR 60, Subpart A – General Provisions. The Permittee shall comply with the applicable provisions of 40 CFR 60, Subpart A as incorporated in Permit Exhibit AA.
- 18.2 40 CFR 60, Subpart GG – Standards of Performance for Stationary Gas Turbines. The Permittee shall comply with the applicable provisions of 40 CFR 60, Subpart GG as incorporated in Permit Exhibit BB. Source No. 23 is exempt from 40 CFR 60.332(a) as set out in 40 CFR 60.332(g).

## **Section 7. State Implementation Plan Emission Standards**

### **19. Industrial Processes and Fuel-Burning Equipment, Source No. 2.**

- 19.1 The Permittee shall not cause visible emissions, excluding condensed water vapor, to reduce visibility in the exhaust effluent by more than 20% for a total of three minutes in any one hour.
- 19.2 The Permittee shall not cause particulate matter emissions to exceed 0.05 grains/dscf, corrected to standard conditions averaged over any three-hour period.
- 19.3 The Permittee shall not cause sulfur compound emission, expressed as sulfur dioxide, to exceed 500 ppm average over a period of any three hours.
- 19.4 For Source No. 2,
  - a. Within 60 days of turbine upgrade, conduct an initial source test to determine the reduction in visibility through the exhaust effluent in accordance with the procedures set out in Section 8 and Section 12 of this permit.
  - b. If requested by the Department, the Permittee shall conduct source tests to determine particulate matter emissions in accordance with the procedures set out in Section 8 of this permit.

### **20. Air Pollution Prohibited.** The Permittee shall not cause any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property.

- 20.1 Within 48 hours of receiving a complaint that is attributable to emissions from the facility, investigate the complaint and take corrective actions to alleviate or eliminate the cause of the complaint.
- 20.2 Keep records of the date, time, and nature of all complaints attributed to emissions from the facility that the Permittee or subsidiary company received and a summary of each investigation and corrective action undertaken. Upon request of the Department, submit copies of the complaint records.

### **21. Good Air Pollution Control Practice.** At all times, including start-up, shut-down, and malfunction, the Permittee shall, to the extent practicable, maintain and operate all sources including associated air pollution control equipment regulated by this permit in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance practices are being used is based on information available to the Department which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspections of the facility. In addition, the Permittee shall comply with the following limitations.

- 21.1 Develop and provide training at the facility to orient each power plant operator to the applicable terms and conditions of this permit. Maintain a log of the time, date, place, and list of attendees for each training session, and a copy of the materials presented in the training sessions. Report to the Department if requested.
  - 21.2 Develop and implement standard operation and maintenance procedures for Sources No. 2 and 23. Keep a copy of the procedures available at a location within the facility that is readily accessible to operators of the sources and to authorized representatives of the Department.
  - 21.3 Keep a copy of this permit, the State Air Quality Control Regulations, 18 AAC 50, and Alaska Statutes, AS 46.14, on file at the facility.
- 22.** The Permittee shall obtain permits or permit revisions required by AS 46.14 or 18 AAC 50 before constructing or modifying a source. The Permittee shall not construct, operate, or modify a source in a manner that would result in a violation of applicable emission standards or interfere with the attainment or maintenance of the ambient air quality standards or maximum allowable ambient concentrations. Keep a record of all activities undertaken to construct and modify a source and any permits or approvals obtained to perform such activities. Upon request of the Department, submit copies of the records.

## **Section 8. General Source Testing and Monitoring Requirements**

- 23. Reference Test Methods.** The Permittee shall use the following as reference test methods when conducting source testing as requested by the Department and this permit:
- 23.1 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(a) must be conducted in accordance with the methods and procedures specified in 40 CFR 60.
  - 23.2 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(b) must be conducted in accordance with the methods and procedures specified in 40 CFR 61.
  - 23.3 Source testing for emissions of particulate matter, sulfur compounds, nitrogen compounds, carbon monoxide, lead, volatile organic compounds, fluorides, sulfuric acid mist, municipal waste combustor organics, metals, and acid gases must be conducted in accordance with the methods and procedures specified 40 CFR 60, Appendix A.
  - 23.4 Source testing for emissions of PM-10 must be conducted in accordance with the procedures specified in 40 CFR 51, Appendix M.
  - 23.5 Source testing for the reduction in visibility through the exhaust effluent must be conducted in accordance with the procedures set out in Section 12 of this permit. Visibility source testing is exempt from the requirements listed in Conditions 25 through 27. Except as otherwise directed by the Department, attach visible emission source testing results to the Facility Operating Report required by Condition 31 of the permit.
  - 23.6 Source testing for emissions of any contaminant may be determined using an alternative method approved by the Department in accordance with Method 301 in Appendix A to 40 CFR 63.
- 24. Test Plans.** Within 60 days after receiving a request and at least 30 days before the scheduled date of any tests, the Permittee shall submit a complete plan for conducting the source tests to the Department for approval. The plan must address the methods and procedures to be used for sampling, testing, and quality assurance, and the operational conditions under which the tests will be performed and documented.
- 25. Test Notification.** The Permittee shall give the Department written notice of all source tests at least 10 days before conducting the tests.

- 26. Test Reports.** Within 45 days after completion of a set of tests, the Permittee shall submit two copies of the results, to the extent practical, in the format set out in the *Source Test Report Outline* of Volume III, Section IV.3, of the State Air Quality Control Plan, adopted by reference in 18 AAC 50.030(8). The Permittee shall certify the results as set out in Condition 36 of this permit.
- 27. Operating Conditions.** Unless otherwise specified by an applicable requirement or test method, the Permittee shall conduct source testing:
- 27.1 At a point or points that characterize the actual discharge into the ambient air; and
- 27.2 At the maximum rated burning or operating capacity of the source or another rate determined by the Department to characterize the actual discharge into the ambient air.
- 28. Excess Air Requirements.** To determine compliance with this permit, standard exhaust gas volumes must only include the volume of gases formed from the theoretical combustion of fuel, plus the excess air volume normal for the specific source type, corrected to standard conditions (dry gas at 70° F and an absolute pressure of 760 millimeters of mercury).
- 29. Continuous Monitoring Systems.** If required by terms and conditions of this permit, install, calibrate, conduct applicable continuous monitoring system performance specification tests listed in 40 CFR 60, Appendix B, effective July 1, 1997, and certify test results; operate; and maintain air contaminant emissions and process monitoring equipment on the sources as described herein and in documents provided by the Permittee, listed in Section 11. Submit monitoring equipment siting, operating, maintenance plans, and procedures for approval by the Department.

For continuous emission monitoring systems, comply with each applicable monitoring system requirement, as listed in 40 CFR 60.13, 60.19, 40 CFR 60, Appendix A, Method 19, Appendix B, Performance Specifications 2 and 6, and Appendix F, and the *EPA Quality Assurance Handbook For Air Pollution Measurements Systems*, EPA/600 R094/038b, effective July 1, 1997. Attach to the Facility Operating Report required by Condition 31: 1) a copy of each quarterly continuous emission monitoring system data assessment report for Quality Assurance Procedures conducted in accordance with 40 CFR 60, Appendix F, if applicable; and 2) a copy of each quarterly monitoring system's performance report in accordance with 40 CFR 60.7.

## **Section 9. General Recordkeeping and Reporting Requirements**

- 30. Facility Operating Report.** The Permittee shall submit to the Department two copies of a quarterly Facility Operating Report, as described in Exhibit D of Permit to Operate No. 9573-AA014 by January 30<sup>th</sup>, April 30<sup>th</sup>, July 30<sup>th</sup>, and October 30<sup>th</sup> each year for operations during the preceding calendar quarter. In addition to copies of the specific records required to be submitted by this permit and Permit to Operate No. 9573-AA014, the report must include a listing of all deviations from the requirements of these permits that occurred during the reporting period. For each deviation, the report must include a discussion of the basis for the deviation, including all of the monitoring recording required by this permit that are associated with the deviation.
- 31. Excess Emission Reports.** The Permittee shall report all emissions or operations that exceed or deviate from the requirements of this permit or that present a potential threat to human health or safety as soon as possible, but no later than 48 hours, after discovery. Report in accordance with Section 11 of this permit or using a format of the Permittee's choice that contains all of the notification elements listed in Section 11.
- 32. Submittals.** Unless otherwise directed by the Department or this permit, the Permittee shall submit two copies of test plans, reports, certifications, notifications, and other information to the Alaska Department of Environmental Conservation, Air Permits Program, 610 University Ave., Fairbanks, AK 99709-3643, Attn: Compliance Technician.
- 33. Information Requests.** The Permittee shall furnish to the Department any information the Department requests in writing to determine whether cause exists to modify, revoke and reissue, or terminate the permit, or to determine compliance with the permit. Upon request, the Permittee shall furnish to the Department copies of records required to be kept by this permit. The Department, in its discretion, will require the Permittee to furnish copies of those records directly to the federal administrator.
- 34. Recordkeeping Requirements.** The Permittee shall keep records required by this permit for at least five years after the date of collection, including

  - 34.1 Copies of all reports submitted pursuant to Conditions 31 and 32 of this permit.
  - 34.2 Records consistent with any recordkeeping requirements set out in the applicable provisions of 40 CFR 60, Subpart A.
  - 34.3 Records of all monitoring required by this permit, and information about the monitoring including:

    - a. calibration and maintenance records, original strip chart, or computer-based recordings;
    - b. sampling dates and the times of sampling or measurement;



- c. the operating conditions that existed at the time of sampling or measurement;
- d. the date analyses were performed;
- e. the location where samples were taken;
- f. the company or entity that performed the sampling and analyses;
- g. the analytical techniques or methods used in the sampling and analysis; and
- h. the results of the analyses.

**35. Certification.** The Permittee shall certify all reports, compliance certifications, or other documents submitted to the Department under the permit as required by 18 AAC 50.205. Except for the reports submitted pursuant to Condition 31, all reports must be certified upon submittal. The Permittee may delay certification of the reports submitted pursuant to Condition 31 if the reports are certified and submitted with a Facility Operating Report required by Condition 30.

## **Section 10. Permit Application Documentation**

September 30, 1974 - letter from Dewey M. Lonnes, ARCO, to ADEC, submitting the original permit application for the flaring system.

November 14, 1974 - letter, C. P. Falls, ARCO, to Dr. M. C. Brewer, ADEC, confirming submittal of the original permit application for the Central Compressor Plant, including twelve 25,000 HP gas turbine compressors and two 28.3 mm Btu/hr heaters.

August 2, 1978 - Dames & Moore “Prevention of Significant Deterioration Permit Application Submitted by Atlantic Richfield Company and SOHIO Petroleum Company on behalf of the Prudhoe Bay Unit Owners to the U.S. Environmental Protection Agency” (North Slope PSD I).

December 18, 1978 - letter, W. P. Metz, ARCO, to S. W. Hungerford, ADEC, requesting renewal of permit with amended application form for the new sources described in PSD I application.

May 16, 1979 - letter, W. P. Metz, ARCO, to E. W. Mueller, ADEC, requesting amendment of permit to include one 25.9 mm Btu/hr heater described in PSD II application.

May 17, 1979 - EPA approval to construct PSD-X79-05 (PSD I).

September 28, 1979 - Radian “PSD Permit Application for the Prudhoe Bay Unit Produced Water Injection, Low Pressure Separation, and Artificial Lift Projects” (North Slope PSD II).

January 14, 1980 - Radian “Technical Note; Air Quality Impacts of Varying Individual Turbine Horsepower and Heater Capacities at Sites of Proposed New Sources in the Prudhoe Bay Oil Field.”

March 5, 1980 - letter, W. P. Metz, ARCO, to E. W. Mueller, ADEC, with attachments, requesting amendment of permit to include one 25,000 HP turbine described in PSD II application.

June 13, 1980 - EPA approval to construct PSD-X80-09 (PSD II).

December 3, 1980 - Radian “Technical Note; Air Quality Impacts in the Prudhoe Bay Oil Field Resulting from an Exchange of Emission Sources” deleting three turbines described in PSD I (North Slope PSD “swap”).

May 7, 1981 - letter D. P. Dubois, EPA, to P. B. Norgard, ARCO, approving the PSD equipment swap (PSD III).

May 21, 1986 – letter from D. L. Lowery, ADEC, to J. Ives, ARCO, issuing Air Quality Permit No. 8636-AA005.

June 2, 1989 - letter, T. H. Pinson, ARCO, to L. D. Verrelli, ADEC, transmitting ENSR Consulting and Engineering “Application to Modify PSD Permit for Prudhoe Bay Unit Central Compressor Plant (GHX-1 Project)”.

November 22, 1989 - letter, T. H. Pinson, ARCO, to L. D. Verrelli, ADEC, in response to notice of the incompleteness of the original application.

December 28, 1989 - letter, T. H. Pinson, ARCO, to L. D. Verrelli, ADEC, providing supplementary information.

December 28, 1989 - letter, J. H. Coutts, ADEC, to T. H. Pinson, ARCO, approving modification of one existing turbine.

January 30, 1990 - letter, L. D. Verrelli, ADEC, to T. H. Pinson, ARCO, granting construction waiver.

March 6, 1990 - letter, T. H. Pinson, ARCO, to L. D. Verrelli, ADEC, clarifying emission factors.

May 8, 1990 - letter, T. H. Pinson, ARCO, to L. D. Verrelli, ADEC, supplying information to justify selection of particular turbine models.

June 26, 1990 - letter, L. D. Verrelli, ADEC, to T. H. Pinson, ARCO, granting construction waiver.

July 5, 1990 - letter, W. D. McGee, ADEC, to T. H. Pinson, ARCO, approving modification of three existing turbines.

September 12, 1990 - letter, T. H. Pinson, ARCO (confidential).

September 17, 1990 - letter from L. D. Verrelli, ADEC, to T. H. Pinson, ARCO, issuing PSD Permit No. 8936-AA006 (GHX-1 Project) and rescinding Permit No. 8636-AA005.

October 10, 1990 - letter from T. H. Pinson, ARCO, to J. H. Coutts, ADEC, notifying modification of three existing turbine and upgrading of 13 existing turbines from Model R to Model P.

March 26, 1991 - letter from J. M. Short, ARCO, to L. D. Verrelli, ADEC, submitting follow-up dispersion model results required by AQC Permit No. 8936-AA006.

April 9, 1991 - letter from L. D. Verrelli, ADEC, to J. M. Short, ARCO, issuing official Page 6 of AQC Permit No. 8936-AA006.

January 11, 1993 - letter from D. W. Hanson, ARCO, to J. D. Greaves, ADEC, notifying of installation of new emission sources at CCP.

January 21, 1993 - letter from J. D. Greaves, ADEC, to D. W. Hanson, ARCO, regarding installation of new emission sources at CCP.

September 1, 1994 - letter from J. D. Greaves, ADEC, to R. G. Elder, ARCO, regarding excess emission event of August 31, 1994, at CCP.

June 26, 1995 - letter from L. Gurule/B. Johnson, ARCO, to A. K. Bohn, ADEC, requesting renewal of AQC Permit No. 8936-AA006.

July 26, 1995 - letter from A. K. Bohn, ADEC, to L. Gurule, ARCO, regarding extension of Permit No. 8936-AA006.

August 29, 1995 - letter from A. K. Bohn, ADEC, to L. Gurule, ARCO, regarding extension of Permit No. 8936-AA006.

September 7, 1995 - letter from M. Major, ARCO, to A. K. Bohn, ADEC, submitting additional information to ADEC for use in renewal of Permit No. 8936-AA006.

November 3, 1995 - Fax from M. Major, ARCO, to A. K. Bohn, ADEC, responding to ADEC for the draft CCP Air Permit No. 9573-AA014.

November 15, 1995 - letter from A. K. Bohn, ADEC, to L. Gurule, ARCO, regarding extension of Permit No. 8936-AA006.

January 10, 1996 - handout from meeting between ADEC and ARCO, comments on second draft permit.

January 19, 1996 - letter from A. K. Bohn, ADEC, to B. Johnson, ARCO, issuing Permit No. 9573-AA014 and rescinding Permit No. 8936-AA006.

March 27, 1996 - letter from A. K. Bohn, ADEC, to B. Johnson, ARCO, issuing Amendment 1 for Permit No. 9573-AA014.

October 2, 1997 - letter from B. Thie, EPA, to R. Poteet, ARCO, authorizing alternate H<sub>2</sub>S sampling method for 40 CFR 60, Subpart GG turbines.

August 30, 1999 - letter from D. W. Hanson, ARCO, to J. Baumgartner, ADEC, submitting application for a construction permit for a CCP Turbine Control System Upgrade.

September 7, 1999 - letter from D. W. Hanson, ARCO, to J. Baumgartner, ADEC, submitting the coastal project questionnaire and retainer for the requested construction permit.

October 25, 1999 - letter from J. Baumgartner, ADEC, to D. W. Hanson, ARCO, regarding installation of lean head liners at ARCO CCP.

November 1, 1999 - letter from J. Baumgartner, ADEC, to D. W. Hanson, ARCO, issuing the construction permit application for the turbine control system upgrade project complete.

March 16, 2000 – letter from J. Baumgartner, ADEC, to D. W. Hanson, ARCO submitting preliminary construction permit No. 0073-AC006 for the turbine control system upgrade project.

April 11, 2000 – letter from D. W. Hanson, ARCO, to J. Baumgartner, ADEC, submitting comments on preliminary construction permit.

May 19, 2000 – letter from J. Baumgartner, ADEC, to D. W. Hanson, ARCO, initializing the proposed consistency determination for the ARCO CCP project.

May 23, 2000 – letter from D. W. Hanson, ARCO, to J. Baumgartner, ADEC, requesting an extension for the proposed consistency determination.

June 2, 2000 – letter from D. W. Hanson, ARCO, to J. Baumgartner, ADEC, requesting a further extension for the proposed consistency determination.

June 8, 2000 – letter from D. W. Hanson, ARCO, to J. Baumgartner, ADEC, requesting a further extension for the proposed consistency determination.

June 14, 2000 – letter from D. W. Hanson, ARCO, to J. Baumgartner, ADEC, submitting a CO monitoring proposal.

July 1, 2000 – Prudhoe Bay Eastern Operating Area transfer and assignment agreement for ADEC Permits. Effective April 27, 2000, Phillips Petroleum Company acquires all shares of ARCO. Effective July 1, 2000, operational control of CCP will be transferred to BPXA.

## Section 11. Excess Emission Notification Form

Submit to: Facsimile: (907) 269-7508 Telephone: (907) 269-8888

Email: [airreports@envircon.state.ak.us](mailto:airreports@envircon.state.ak.us)

Company Name	Facility Name	Permit Number	
<b>1. Event Information</b> (Use 24-hour clock):			
	<b>End Time:</b>	<b>Start Time:</b>	<b>Duration</b> (hr:min):
Date: _____	_____:	_____:	_____:
Date: _____	_____:	_____:	_____:
<b>Total:</b>			_____:

**2. Cause of Event** (Check all that apply):

<input type="checkbox"/> START UP	<input type="checkbox"/> UPSET CONDITION	<input type="checkbox"/> CONTROL EQUIPMENT
<input type="checkbox"/> SHUT DOWN	<input type="checkbox"/> SCHEDULED MAINTENANCE	<input type="checkbox"/> OTHER _____

*Provide a detailed description of what happened. Attach additional sheets as necessary.*

### 3. Sources Involved:

*Identify each Emission Source involved in the event, using the same identification number and name as in the Permit. List any Control Device or Monitoring System affected by the event. Attach additional sheets as necessary.*

Source ID No.	Source Name	Description	Control Device
_____	_____	_____	_____
_____	_____	_____	_____

### 4. Emission Standard Exceeded:

*Identify each Emission Standard and Permit Condition exceeded during the event. Describe in detail, the extent to which each Standard or Condition was exceeded. List ALL known or suspected injuries or health impacts. Attach additional sheets as necessary.*

Standard or Condition	Limit	Exceedance
_____	_____	_____
_____	_____	_____

### 5. Emission Reduction:

*Describe in detail, ALL of the measures taken to minimize and/or control emissions during the event. Attach additional sheets as necessary.*

### 6. Corrective Actions:

*Describe in detail, ALL of the corrective actions taken to restore the system to normal operation. Attach additional sheets as necessary.*

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## **Section 12. Visible Emission Evaluation Procedures**

An observer qualified according to 40 CFR 60, Method 9, shall use the following procedures to determine the reduction of visibility through the exhaust effluent.

**Position.** The qualified observer shall stand at a distance sufficient to provide a clear view of the emissions with the sun oriented in the 140° sector to his back. Consistent with maintaining the above requirement, the observer shall, as much as possible, make his observations from a position such that his line of vision is approximately perpendicular to the plume direction and, when observing opacity of emissions from rectangular outlets (e.g., roof monitors, open baghouses, non-circular stacks), approximately perpendicular to the longer axis of the outlet. The observer's line of sight should not include more than one plume at a time when multiple stacks are involved, and in any case the observer should make his observations with his line of sight perpendicular to the longer axis of such a set of multiple stacks (e.g., stub stacks on baghouses).

**Field Records.** The observer shall record the name of the plant, emission location, facility type, observer's name and affiliation, and the date on the Visible Emissions Field Data Sheet. The time, estimated distance to the emission location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), and plume background are recorded on the sheet at the time opacity readings are initiated and completed.

**Observations.** Opacity observations shall be made at the point of greatest opacity in that portion of the plume where condensed water vapor is not present. The observer shall not look continuously at the plume, but instead shall observe the plume momentarily at 15-second intervals.

**Attached Steam Plumes.** When condensed water vapor is present within the plume as it emerges from the emission outlet, opacity observations shall be made beyond the point in the plume at which condensed water vapor is no longer visible. The observer shall record the approximate distance from the emission outlet to the point in the plume at which the observations are made.

**Detached Steam Plume.** When water vapor in the plume condenses and becomes visible at a distinct distance from the emission outlet, the opacity of emissions should be evaluated at the emission outlet prior to the condensation of water vapor and the formation of the steam plume.

**Recording Observations.** Opacity observations shall be recorded to the nearest 5 percent at 15-second intervals on the Visible Emissions Observation Record contained in this section. A minimum of 24 observations shall be recorded. Each momentary observation recorded shall be deemed to represent the average opacity of emissions for a 15-second period.

**Data Reduction.** For compliance with a standard set out in Condition 19.1 of this permit, count the number of readings that exceed 20 percent opacity and record this number on the sheet.

## Visible Emissions Field Data Sheet

When doing readings: Maintain a distance of at least 15 feet from the emission point; when possible while still conforming to Method 9, select a position to minimize interference between sources; if interference cannot be avoided between sources, use the least stringent opacity standard that applies to any of the sources involved; and if wet dust suppression is used, read the part of the plume where there are no visible emissions caused by water mist.

Certified Observer \_\_\_\_\_

Company \_\_\_\_\_

Location \_\_\_\_\_

Test No. \_\_\_\_\_ Date \_\_\_\_\_

Source \_\_\_\_\_

Production Rate: \_\_\_\_\_

Hrs. of observation: \_\_\_\_\_

Clock Time	Initial			Final
Observer location				
Distance to discharge				
Direction from discharge				
Height of observer point				
Background description				
Weather conditions				
Wind Direction				
Wind speed				
Ambient Temperature				
Relative humidity				
Sky conditions: (clear, overcast, % clouds, etc.)				
Plume description:				
Color				
Distance visible				
Water droplet plume? (attached or detached?)				
Other information				



Set Number	Time Start—End	Opacity	
		Sum	Average

**EXHIBIT AA – 40 CFR 60 SUBPART A**

**EXHIBIT BB – 40 CFR 60 SUBPART GG**